IN THE SPECIFICATION:

Please amend the specification according to the following replacement paragraphs:

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[0015] FIGURE 10 shows a block diagram of an input port ~~10t~~ 12;

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[0019] FIGURE 1 shows a block diagram of an interface 100 according to an embodiment of the invention. Interface 100 connects to a number of communications devices via input/output ports 10. Specifically, interface 10 receives an input signal S10 from, and transmits an output signal S16 and a PTT (push-to-transmit) command S60 to, the communications device connected to each input/output port ~~S10~~ 10.

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[0023] Each communications device 1 is connected to a corresponding I/O port 10 through a signal and control cable 220 that carries input signal S10, output signal S16, and PTT command S60. Cable 220 may terminate at either end with one or more standard connectors (such as 2.5- or 3.5-mm miniature audio plugs), and/or specialized connectors may be used, depending upon the particular physical characteristics of the associated communications device. It is also possible for the audio and PTT command signals to be carried between port 10 and a communications device 1 over two or more separate cables rather than through a single signal and control cable 220. Upon connection with communications devices ~~A1–D1~~ 1A–1D as described above, interface 100 operates as described herein to enable users of communications devices ~~A2–D2~~ 2A–2D (each matching a respective one of the devices ~~A1–D1~~ 1A–1D) to communicate with each other.

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[0024] FIGURE ~~2~~ 3 shows a block diagram of a VOX circuit 20 according to an embodiment of the invention. Conditioning circuit 110 receives input signal S10 and outputs a conditioned audio signal to rectifying circuit 120. Conditioning circuit ~~120~~ 110 may perform signal processing operations on input signal S10 such as gain, equalization, and filtering. In an exemplary implementation, conditioning circuit 110 provides variable gain by including an operational amplifier (op amp) configured to have variable resistive feedback. The several VOX circuits 20 may be implemented on separate circuit boards within interface 100, or one or more of the VOX circuits 20 may be implemented on the same board.

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[0025] Conditioning circuit ~~120~~ 110 may be constructed to perform equalization operations as desired according to the output characteristics of a particular communications

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device. For example, a cellular or wireline telephone may provide an audio signal having a different spectral distribution than a two-way radio.

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[0030] It may be desirable to continue channel activation signal S30 for some period of time after the voltage of peak signal S20 falls below the reference voltage Vc. Timing circuit 130 provides a tail delay to continue a level of peak signal S20. In one example, timing circuit 130 includes a capacitance to ground in parallel with a resistance. When peak signal S20 is active, the capacitance is charged. When the conditioned audio signal becomes less active or inactive, the charged capacitance maintains a voltage level of peak signal S20 until the resistance discharges it to ground. In a further example, the resistance is variable to provide a time constant of from less than one second to several seconds.

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[0032] Priority circuit 150 responds to an activation of either channel activation signal S30 (by comparator 140) or priority signal S50 (by another instance of ~~audio control circuit 200~~ priority circuit 150). In a case where channel activation signal S30 becomes active, priority circuit 150 asserts priority signal S50 and does not assert PTT command signal S60. As a result, other channels are prevented from being activated, and the associated channel is maintained in receive mode.

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[0036] In a case where priority circuit 150 receives priority signal S50, peak suppression element 210 is turned on. The resulting path to ground in peak suppression element 210 pulls peak signal S20 to ground, thus preventing channel activation signal S30 from being asserted (by keeping peak signal S20 from exceeding the ~~threshold voltage~~ reference voltage Vc and by preventing charging of the capacitance in timing circuit 130). Priority signal S50 also causes PTT closure element 230 to turn on, thus pulling PTT command S60 to ground and sending a PTT closure command to the associated communications device.

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[0037] FIGURE 5 shows a VOX circuit 22 according to an alternate implementation of VOX circuit 20. VOX circuit 22 includes an initialization circuit 170 that prevents the assertion of channel activation signal S30 during power-up of the interface 100. For example, initialization circuit may pull peak signal S20 below the ~~threshold voltage~~ reference voltage Vc (e.g. to ground) during power-up. In an exemplary implementation, initialization circuit 170 includes a BJT having its collector coupled to peak signal S20, its emitter coupled to ground, and its base coupled to a supply voltage of interface 100 through a capacitance. A transient occurring on the supply voltage during power-up causes the capacitance to conduct a voltage to

A9 the base of this BJT, creating a conductive path between the collector and emitter until the supply voltage reaches a steady state.

A10 [0039] FIGURE 7 shows an alternate implementation 32 of a switching matrix according to an embodiment of the invention. In this implementation, a circuit Ckt1 conditions the signal on the common bus before it passes ~~through~~ into multiplexers M1. Rather than a null input as shown in FIGURE 6, a nonnull input based on a reference voltage Vr is selected by the multiplexer M1 corresponding to the asserted CA signal S30. The nonnull input may be produced by a circuit Ckt2 as shown in FIGURE 7. Reference voltage Vr may be chosen to be ~~approximately one-half of Vcc~~ at least one-quarter of Vcc; in one embodiment, reference voltage Vr is approximately one-half of Vcc. Use of a nonnull voltage rather than a null voltage may improve audio quality by reducing popping noise at keying events.

A11 [0040] FIGURE 8 illustrates an exemplary application of an alternate implementation 102 of an interface according to an embodiment of the invention that includes an I/O port 12 that communicates with a telephone, which may be wired (e.g. having a landline connection to the PSTN) and/or wireless (e.g. having a connection to a cellular telephone network), over a cable 220t. ~~FIGURE 9 shows a block diagram of interface 102.~~ In one embodiment of the invention, cable 220t includes an acoustic coupler. FIGURE 9 shows a block diagram of interface 102. In order to compensate for a difference in audio quality (e.g. spectral content) in the signal provided by the telephone and/or the acoustic coupler, I/O port 12 may include gain and/or equalization operations in conditioning circuits 310–340 as shown in FIGURE 10. In an exemplary implementation, conditioning circuit 340 outputs an active differential (e.g. balanced) output on acoustic coupler output signal S96 to compensate for inefficiencies in the transfer of acoustic energy to the telephone.

A12 [0041] FIGURE 11 shows a schematic diagram of an input select circuit 360. By providing a short or an open circuit across input select ~~signal S98~~ terminals T98, cable 220t causes circuit 360 to select input signal S10t from among signals S90c and S92c (corresponding to acoustic coupler input signal S90 and wired input signal S92, respectively).

A13 [0043] ~~FIGURE 12 shows a block diagram of a supply voltage monitor circuit 300, and FIGURE 13 shows a block diagram of an alternate implementation 302 of a supply voltage monitor circuit.~~ FIGURE 12 shows a block diagram of a supply voltage monitor circuit 300 including two voltage level sensors 310 and 320. Each of these sensors 310 and 320 monitors

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the supply voltage by indicating a relation between the supply voltage and a predetermined threshold voltage. FIGURE 13 shows a block diagram of an alternate implementation 302 of a supply voltage monitor circuit, in which each sensor 310/320 includes a voltage divider 312/322 and a threshold detector 314/324. In this implementation, sensor 320 is configured to have a higher threshold voltage than sensor 310. When sensor 320 indicates the predetermined relation between the supply voltage and its higher threshold voltage, the indication signal is also inputted to suppression circuit 330, which suppresses an indication by sensor 310 of a relation between the supply voltage and the lower threshold voltage.

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[0044] An interface 100 according to an embodiment of the invention is designed to work reliably and at low power. Because the current demand of apparatus 100 is kept at a minimum, and because the communications devices ~~A1–D1~~ 1A–1D are self-powered, apparatus 100 may operate reliably on common, primary-type, DC battery cells, a vehicle cigarette-lighter jack, or another low-power source such as may be readily available on the scene (e.g. a +28 VDC aircraft power bus), with no need for an inverter, generator or landline AC supply.

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[0046] In a further embodiment of the invention, switching matrix 30 is configurable so that an organizational structure among the communications devices ~~A1–D1~~ 1A–1D may be incorporated. For example, communications received from members of one service group may generally be transmitted only to radios within that group, while communications received from any commander may be transmitted by all other communications devices. In a further embodiment of the invention, at least one of the cables 220 supports an additional control path so that the configuration of switching matrix 30 may be controlled at least in part by a control signal from the corresponding communications device.